

CLAIMS

1. In a beverage brewer with a hot water tank, means for maintaining the hot water at a preselected temperature and a brew basket for holding ingredient to be brewed into a beverage by dispensing the hot water through the ingredient, the improvement being a rate selectable dispense system, comprising:
 - a plurality of bi-position dispense valves, each of said bi-position dispense valves having an inlet and an outlet;
 - means for connecting the inlet of each of the dispense valves to the hot water tank;
 - means for connecting an outlet of each of the dispense valves to the brew basket;
 - and
 - means for selectively actuating the plurality of valves to selectively continuously pass hot water from the hot water tank to the brew basket at different preselected continuous cumulative rates.
2. The beverage brewer of claim 1 in which at least two of the plurality of dispense valves are of different sizes associated with different individual flow rate capacities.
3. The beverage brewer of claim 2 in which the inlet connecting means includes means for connecting the hot water tank to the inlet of each of at least two of the plurality of dispense valves at a common level of the hot water tank that is the same for the at least two of the plurality of dispense valves.
4. The beverage brewer of claim 2 in which the inlet connecting means includes means for connecting to the hot water tank the inlet of at least two of the plurality of dispense valves at levels of the hot water tank different from one another.

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5. The beverage brewer of claim 4 in which the at least two of the plurality of dispense valves with inlets at levels different from one another are the same as the at least two plurality of dispense valves of different sizes.
 6. The beverage brewer of claim 5 in which a smaller one of the at least two of the plurality of dispense valves of different sizes is located at a higher level than a larger one of the at least two of the plurality of dispense valve of different sizes.
 7. The beverage brewer of claim 6 in which the relationship between the sizes of the dispense valve relative to the levels of the inlets of the dispense valves is preselected to dispense different preselected quantities of hot water during a common dispense time period when any one of the dispense valve is opened
 8. The beverage brewer of claim 2 in which all of the plurality of dispense valves are of different sizes from one another.
 9. The beverage brewer of claim 7 in which all of the plurality of dispense valve have inputs connected to the hot water tank at a plurality of different levels of the hot water tank.
 - 10 The beverage brewer of claim 2 in which at least two of the plurality of dispense valves are substantially equal in size to one another and have a common individual flow rate capacity.
 11. The beverage brewer of claim 1 in which at least two of the plurality of dispense valves are substantially equal in size to one another and have a common flow rate capacity.
 12. The beverage brewer of claim 11 in which the inlet connecting means includes means for connecting the hot water tank to the inlet of each of at least two of the plurality of

dispense valves at a common level of the hot water tank that is the same for the at least two of the plurality of dispense valves.

13. The beverage brewer of claim 12 in which the selectively actuating means includes means for actuating a preselected number of the at least two of the plurality of dispense valves simultaneously.

14. The beverage brewer of claim 11 in which the inlet connecting means includes means for connecting to the hot water tank the inlet of at least two of the plurality of dispense valves at levels of the hot water tank different from one another.

15. The beverage brewer of claim 1 in which the inlet connecting means includes means for connecting the hot water tank to the inlet of each of at least two of the plurality of dispense valves at a common level of the hot water tank that is the same for the at least two of the plurality of dispense valves.

16. The beverage brewer of claim 15 in which the inlet connecting means includes means for connecting to the hot water tank the inlet of at least two of the plurality of dispense valves at levels of the hot water tank different from one another.

17. The beverage brewer of claim 1 in which the inlet connecting means includes means for connecting to the hot water tank the inlet of at least two of the plurality of dispense valves at levels of the hot water tank different from one another.

18. In a beverage brewer with a hot water tank, means for maintaining the hot water at a preselected temperature and a brew basket for holding ingredient to be brewed into a beverage by dispensing the hot water through the ingredient, the improvement being a rate selectable dispense system, comprising:

a size adjustable remotely electrically controllable dispense valve having an inlet and an outlet;

means for connecting the inlet of the valve to the hot water tank;

means for connecting the outlet of the dispense valve to the brew basket; and
means for selectively generating different control signals to adjust the size of the dispense valve to selectively continuously pass hot water from the hot water tank to the brew basket at different continuous rates.

19. The beverage brewer of claim 18 in which the size adjustable valve is incrementally adjusted in response to different control signals.

20. The beverage brewer of claim 19 in which the sized adjustable valve is a solenoid controlled valve.

21. The beverage brewer of claim 20 in which the size adjustable valve is made of relatively rigid metal.

22. The beverage brewer of claim 19 in which the size adjustable valve has controllable stops for stopping a valve closure at different open positions.

23. The beverage brewer of claim 19 in combination with a controller for automatically controlling the size of the valve to open to different sizes in accordance with different predetermined manual inputs.

24. In a beverage brewer having a hot water tank and a brew basket for holding brew ingredient that is brewed when the hot water is dispensed through the ingredient, the improvement being a dispense-area adjustable dispense assembly, comprising:

a dispense valve intake manifold with an inlet connected to a hot water tank and a plurality of dispense intake manifold valve outlets;

a dispense valve output manifold with a plurality of dispense output manifold valve inlets and an output manifold outlet for passing hot water to the brew basket;

a plurality of dispense valves with inlets respectively connected to the plurality of dispense intake manifold valve outlets and with valve outlets respectively connected to the plurality of dispense output manifold valve inlets; and

means for selectively controlling the opening and closing of the plurality of the dispense valves to selectively vary the rate of continuous flow of dispense water from the hot water tank to the brew basket.

25. The beverage brewer of claim 24 in which the plurality of valves are solenoid controlled valves having only one open position.

26. The beverage brewer of claim 24 in which at least one of the plurality of valves is a solenoid controlled valve with a plurality of different open positions.

27. The beverage brewer of claim 24 in which the selectively controlling means is a programmable controller that selectively opens different combinations of the plurality of valves to achieve different total flow rates through the manifold.

28. In a beverage brewer with a hot water tank, means for maintaining the hot water at a preselected temperature and a brew basket for holding ingredient to be brewed into a beverage by dispensing the hot water through the ingredient, the improvement being a method of selectively controlling a continuous dispense rate, comprising the steps of:

connecting the inlet of each of a plurality of bi-position dispense valves, each of said bi-position dispense valves having an inlet and an outlet, to the hot water tank;
connecting an outlet of each of the dispense valves to the brew basket; and
selectively actuating the plurality of valves to selectively continuously pass hot water from the hot water tank to the brew basket at different preselected continuous cumulative rates.

29. The method of claim 28 in which at least two of the plurality of dispense valves are of different sizes associated with different individual flow rate capacities.

30. The method of claim 29 in which the step of connecting includes the step of connecting the hot water tank to the inlet of each of at least two of the plurality of

dispense valves at a common level of the hot water tank that is the same for the at least two of the plurality of dispense valves.

32. The method of claim 29 in which the step of inlet connecting includes the step of connecting to the hot water tank the inlet of at least two of the plurality of dispense valves at levels of the hot water tank different from one another.

33. The method of claim 32 in which the at least two of the plurality of dispense valves with inlets at levels different from one another are the same as the at least two of the plurality of dispense valves of different sizes.

34. The method of claim 33 in which a smaller one of the at least two of the plurality of dispense valves of different sizes is located at a higher level than a larger one of the at least two of the plurality of dispense valve of different sizes.

35. The method of claim 34 in which the relationship between the sizes of the dispense valve relative to the levels of the inlets of the dispense valves is preselected to dispense different preselected quantities of hot water during a common dispense time period when any one of the dispense valve is opened

36. The method of claim 29 in which all of the plurality of dispense valves are of different sizes from one another.

37. The method of claim 36 in which all of the plurality of dispense valve have inputs connected to the hot water tank at a plurality of different levels of the hot water tank.

38. The method of claim 29 in which at least two of the plurality of dispense valves are substantially equal in size to one another and have a common individual flow rate capacity.

39. The method of claim 28 in which at least two of the plurality of dispense valves are substantially equal in size to one another and have a common flow rate capacity.

40. The method of claim 39 in which the inlet connecting means includes means for connecting the hot water tank to the inlet of each of at least two of the plurality of dispense valves at a common level of the hot water tank that is the same for the at least two of the plurality of dispense valves.

41. The method of claim 40 in which the selectively actuating means includes means for actuating a preselected number of the at least two of the plurality of dispense valves simultaneously.

42. The method of claim 39 in which the inlet connecting means includes means for connecting to the hot water tank the inlet of at least two of the plurality of dispense valves at levels of the hot water tank different from one another.

43. The method of claim 28 in which the inlet connecting means includes means for connecting the hot water tank to the inlet of each of at least two of the plurality of dispense valves at a common level of the hot water tank that is the same for the at least two of the plurality of dispense valves.

44. The method of claim 43 in which the inlet connecting means includes means for connecting to the hot water tank the inlet of at least two of the plurality of dispense valves at levels of the hot water tank different from one another.

45. The method of claim 28 in which the inlet connecting means includes means for connecting to the hot water tank the inlet of at least two of the plurality of dispense valves at levels of the hot water tank different from one another.

46. In a beverage brewer with a hot water tank, means for maintaining the hot water at a preselected temperature and a brew basket for holding ingredient to be brewed into a

beverage by dispensing the hot water through the ingredient, the improvement being a rate selectable dispensing method comprising the steps of:

remotely electrically controlling a size adjustable dispense valve having an inlet and an outlet;

connecting the inlet of the valve to the hot water tank;

connecting the outlet of the dispense valve to the brew basket; and

selectively generating different control signals to adjust the size of the dispense valve to selectively continuously pass hot water from the hot water tank to the brew basket at different continuous rates.

47. The method of claim 46 in which the size adjustable valve is incrementally adjusted in response to different control signals.

48. The method of claim 47 in which the sized adjustable valve is a solenoid controlled valve.

49. The method of claim 47 in which the size adjustable valve is made of relatively rigid metal.

50. The method of claim 47 in which the size adjustable valve has controllable stops for stopping a valve closure at different open positions.

51. The method of claim 47 in combination with a controller for automatically controlling the size of the valve to open to different sizes in accordance with different predetermined manual inputs.

52. In a beverage brewer having a hot water tank and a brew basket for holding brew ingredient that is brewed when the hot water is dispensed through the ingredient, the improvement being a method of adjusting the dispense rate, comprising:

connecting inlets of a plurality of dispense valves to a plurality of dispense valve intake manifold outlets, said dispense valve intake manifold having an inlet connected to a hot water tank and a plurality of dispense intake manifold valve outlets;

connecting outlets of a the plurality of dispense valves to a plurality of inlets of a dispense valve output manifold, said dispense valve output manifold having a plurality of dispense output manifold valve inlets and an output manifold outlet for passing hot water to the brew basket; and

selectively controlling the opening and closing of the plurality of the dispense valves to selectively vary the rate of continuous flow of dispense water from the hot water tank to the brew basket.

53. The method of claim 52 in which the plurality of valves are solenoid controlled valves having only one open position.

54. The method of claim 52 in which at least one of the plurality of valves is a solenoid controlled valve with a plurality of different open positions.

55. The method of claim 52 in which the selectively controlling means is a programmable controller that selectively opens different combinations of the plurality of valves to achieve different total flow rates through the manifold.